Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of claims:

9. (currently amended): A method of producing a merozite surface protein 1 (MSP-1) or a fragment thereof in the milk of a non-human transgenic mammal, comprising:

providing a non-human transgenic mammal whose genome comprises a modified nucleic acid sequence of the nucleotide sequence set forth in SEQ ID NO. 2 encoding a MSP-1 operably linked to mammary gland specific promoter [encoding MSP-1 or fragment thereof operably linked to a promoter which directs expression in the mammary gland,] wherein the modified nucleic acid of the MSP-1 sequence of SEQ ID NO.2 has been modified such that the AT content is reduced by 50% or less by replacing wild-type codons with codons preferred by mammalian cells [by replacing at least one AT-containing codon of a wild-type nucleic acid sequence encoding MSP-1 with a preferred codon] encoding the same amino acid as the replaced codon such that the AT-content of the modified nucleic acid is lowered as compared to the wild-type nucleic acid sequence encoding MSP-1 [; and,

allowing the transgenic mammal to express MSP-1 or fragment thereof in its milk, to thereby produce MSP-1 or fragment thereof].

10. (canceled)

11. (canceled)

12. (canceled)

13. (previously presented): The method of claim 9, wherein the promoter is a beta casein promoter.

14. (previously presented): The method of claim 9, wherein the wild type nucleic acid sequence has been altered such that at least one glycosylation site of MSP-1 is not functional

15. (previously presented): The method of claim 14, wherein the wild-type nucleic acid sequence has been altered such that all of the glycosylation sites of MSP-1 are not functional.

16. (previously presented): The method of claim 9, wherein the wild type nucleic acid sequence which has been modified comprises the nucleic acid sequence of SEQ ID NO:2.

17. (previously presented): The method of claim 16, wherein a glycosylation site at position 181 of the wild type MSP-1 amino acid sequence is altered such that it is not functional.

18. (previously presented): The method of claim 16, wherein a glycosylation site at position 262 of the wild type MSP-1 amino acid sequence is altered such that it is non-functional.

19. (previously presented): The method of claim 16, wherein glycosylation sites at positions 181 and 262 of the wild type MSP-1 amino acid sequence are altered such that they are not functional.

20. (currently amended): A method of producing a merozite surface protein 1 (MSP-1) or fragment thereof in the milk of a non-human transgenic mammal, comprising:

providing a non-human transgenic mammal whose genome comprises a modified nucleic acid [encoding MSP-1 or fragment thereof operably linked to a promoter] <u>sequence of the nucleotide sequence set forth in SEQ ID NO. 2 encoding a MSP-1 operably linked to mammary gland specific promoter</u> which directs expression in the mammary gland, wherein the nucleic acid

has been modified such that all all the mRNA instability motifs have been eliminated by replacing wild-type protozoan codons with codons that are preferred by mammalian cells that encode [by replacing at least a portion of an mRNA instability motif in the coding sequence of a wild-type nucleic acid sequence encoding MSP-1 with a preferred codon encoding] the same amino acid as the replaced codon; and

allowing the transgenic mammal to express MSP-1 or fragment thereof in its milk, to thereby produce MSP-1 or fragment thereof.

21. (canceled)

22. (canceled)

23. (canceled)

24. (previously presented): The method of claim 20, wherein the promoter is a beta casein promoter.

25. (previously presented): The method of claim 20, wherein the wild-type nucleic acid sequence has been altered such that at least one glycosylation site of MSP-1 is not functional.

26. (previously presented) The method of claim 25, wherein the wild-type nucleic acid sequence has been altered such that all of the glycosylation sites of MSP-1 are not functional.

27. (previously presented): The method of claim 20, wherein the wild type nucleic acid sequence which has been modified comprises the nucleic acid sequence of SEQ ID NO:2.

28. (previously presented): The method of claim 27, wherein a glycosylation site at position

181 of the wild type MSP-1 amino acid sequence is altered such that it is not functional.

29. (previously presented): The method of claim 27, wherein a glycosylation site at position 262 of the wild type MSP-1 amino acid sequence is altered such that it is non-functional.

30. (currently amended): A method for producing a merozite surface protein 1 (MSP-1) or fragment thereof in the milk of a non-human transgenic mammal, comprising:

providing a non-human transgenic mammal whose genome comprises a modified nucleic acid sequence of the nucleotide sequence set forth in SEQ ID NO. 2 encoding a MSP-1 operably linked to mammary gland specific promoter [encoding MSP-1 or fragment thereof operably linked to a promoter which directs expression in the mammary gland], wherein the nucleic acid has been modified by

a) replacing those portions of MSP-1 nucleic acid sequence such that all the mRNA instability motifs have been eliminated by replacing wild-type protozoan codons with codons that are preferred by mammalian cells that encode [at least a portion of an mRNA instability motif in the coding sequence of a wild type nucleic acid encoding MSP-1 with a preferred mammary gland-specific codon encoding] the same amino acid as the replaced portion of the mRNA instability motif; and

b) replacing one or more AT-containing codons of the nucleic acid of the wild-type nucleic acid sequence such that the AT content is modified and reduced by 50% or less by replacing wild-type codons with codons preferred by mammalian cells while the replacement codons encode mammalian cell preferred codons and encode [with a preferred mammary gland-specific codon encoding] the same amino acid as the replaced codon; and

allowing the transgenic mammal to express MSP-l or fragment thereof in its milk, to thereby produce MSP-1 or fragment thereof

31. (canceled):

32. (canceled)

33. (canceled)

34. (canceled)

35. (previously presented): The method of claim 30, wherein the modified nucleic acid is expressed in milk at a level which is at least 25% more than the wild-type nucleic acid sequence is expressed under the same conditions.

36. (previously presented): The method of claim 30, wherein the modified nucleic acid is expressed in milk at a level which is at least 50% more than the wild-type nucleic acid sequence is expressed under the same conditions.

37. (previously presented): The method of claim 30, wherein the modified nucleic acid is expressed in milk at a level which is at least 100% more than the wild-type nucleic acid sequence is expressed under the same conditions.

38. (previously presented): The method of claim 30, wherein all non-preferred mammary gland specific codons are replaced with preferred mammary gland specific codons.

39. (previously presented): The method of claim 30, wherein the wild type nucleic acid sequence which has been modified comprises the nucleic acid sequence of SEQ ID NO:2.

40. (previously presented): The method of claim 30, wherein a glycosylation site at position 181 of the wild type MSP-1 amino acid sequence is altered such that it is not functional.

41. (previously presented): The method of claim 30, wherein a glycosylation site at position 262 of the wild type MSP- 1 amino acid sequence is altered such that it is non-functional.

42. (currently amended): A transgenic non-human mammal whose genome comprises a modified nucleic acid sequence of the nucleotide sequence set forth in SEQ ID NO. 2 encoding a MSP-1 operably linked to mammary gland specific promoter [encoding MSP-1 or fragment thereof operably linked to a promoter which directs expression in the mammary gland], wherein the nucleic acid has been modified by replacing those portions of MSP-1 nucleic acid sequence such that all the mRNA instability motifs have been eliminated by replacing wild-type protozoan codons with codons that preferred by mammalian cells that encode [at least a portion of an mRNA instability motif in the coding sequence of a wild-type nucleic acid encoding MSP-1 with a preferred mammary gland-specific codon encoding the same amino acid as the replaced portion of the mRNA instability motif and replacing one or more AT-containing codons of the wild-type nucleic acid sequence with a preferred mammary gland-specific codon encoding] the same amino acid as the replaced codon, wherein the transgenic mammal expresses MSP-1 or fragment thereof in its milk[.] ; and, wherein the AT content is modified and reduced by 50% or less by replacing wild-type codons with codons preferred by mammalian cells while the replacement codons encode mammalian cell preferred codons.

43. (canceled)

44. (canceled)

45. (canceled)

46. (canceled)

47. (previously presented): The mammal of claim 42, wherein the modified nucleic acid is expressed in milk at a level which is at least 25% more than the naturally occurring

nucleic acid is expressed under the same conditions.

48. (previously presented): The mammal of claim 42, wherein the modified nucleic acid is expressed in milk at a level which is at least 50% more than the naturally occurring nucleic acid is expressed under the same conditions.

49. (previously presented): The mammal of claim 42, wherein the modified nucleic acid is expressed in milk at a level which is at least 100% more than the naturally occurring nucleic acid is expressed under the same conditions.

50. (previously presented): The mammal of claim 42, wherein all non-preferred mammary gland specific codons are replaced with preferred mammary gland specific codons.

51. (previously presented): The mammal of claim 42, wherein the wild type nucleic acid sequence which has been modified comprises the nucleic acid sequence of SEQ ID NO:2.

52. (previously presented) The mammal of claim 51, wherein a glycosylation site at position 181 of the wild type MSP-1 amino acid sequence is altered such that it is not functional.

53. (previously presented): The mammal of claim 51, wherein a glycosylation site at position 262 of the wild type MSP-l amino acid sequence is altered such that it is non-functional.

54. (previously presented): The mammal of claim 42, wherein the promoter is a beta casein promoter.

55. (currently amended): A transgenic non-human mammal whose genome comprises a modified nucleic acid sequence of the nucleotide sequence set forth in SEQ ID NO. 2 encoding a MSP-1 operably linked to mammary gland specific promoter [encoding MSP-1 or fragment thereof operably linked to a promoter which directs expression in the mammary gland], wherein the nucleic acid has been modified such that the AT content is reduced by 50% or less by replacing wild-type codons with codons preferred by

mammalian cells [by replacing at least one AT-containing codon of a wild-type nucleic acid sequence encoding MSP-1 with a preferred codon] encoding the same amino acid as the replaced codon such that the AT-content of the modified nucleic acid is lowered as compared to the wild-type nucleic acid sequence encoding MSP-1, wherein the transgenic mammal expresses MSP-1 or fragment thereof in its milk.

56. (canceled)

57. (canceled)

58. (canceled)

59. (previously presented): The mammal of claim 55, wherein the promoter is a beta casein promoter.

60. (previously presented): The mammal of claim 55, wherein the wild type nucleic acid sequence has been altered such that at least one glycosylation site of MSP-1 is not functional.

61. (previously presented): The mammal of claim 60, wherein the wild-type nucleic acid sequence has been altered such that all of the glycosylation sites of MSP-l are not functional.

62. (previously presented): The mammal of claim 55, wherein the wild type nucleic acid sequence which has been modified comprises the nucleic acid sequence of SEQ ID NO:2.

63. (previously presented): The mammal of claim 62, wherein a glycosylation site at position 181 of the wild type MSP-l amino acid sequence is altered such that it is not functional.

64. (previously presented): The mammal of claim 62, wherein a glycosylation site at position 262 of the wild type MSP-1 amino acid sequence is altered such that it is non-functional.

65. (previously presented): The mammal of claim 62, wherein glycosylation sites at positions 181 and 262 of the wild type MSP-1 amino acid sequence are altered such that they are not functional.

66. (currently amended): A transgenic non-human mammal whose genome comprises a modified nucleic acid [encoding MSP-1 or fragment thereof operably linked to a promoter] sequence of the nucleotide sequence set forth in SEQ ID NO. 2 encoding a MSP-1 operably linked to mammary gland specific promoter which directs expression in the mammary gland, wherein the nucleic acid has been modified such that all all the mRNA instability motifs have been eliminated by replacing wild-type protozoan codons with codons that are preferred by mammalian cells that encode [by replacing at least a portion of an mRNA instability motif in the coding sequence of a wild-type nucleic acid sequence encoding MSP-] with a preferred codon encoding] the same amino acid as the replaced codon, wherein the transgenic mammal expresses MSP-1 or fragment thereof in its milk.

67. (canceled)

68. (canceled)

69. (canceled)

70. (previously presented): The mammal of claim 66, wherein the promoter is a beta casein promoter.

71. (previously presented): The mammal of claim 66, wherein the wild-type nucleic acid sequence has been altered such that at least one glycosylation site of MSP-1 is not functional.

72. (previously presented): The mammal of claim 71, wherein the wild-type nucleic acid

sequence has been altered such that all of the glycosylation sites of MSP-1 are not functional.

73. (previously presented): The mammal of claim 66, wherein the wild type nucleic acid sequence which has been modified comprises the nucleic acid sequence of SEQ ID NO:2.

74. (previously presented): The mammal of claim 73, wherein a glycosylation site at position 181 of the wild type MSP-1 amino acid sequence is altered such that it is not functional.

75. (previously presented): The mammal of claim 73, wherein a glycosylation site at position 262 of the wild type MSP-1 amino acid sequence is altered such that it is non-functional.

76. (previously presented): The mammal of claim 73, wherein glycosylation sites at positions 181 and 262 of the wild type MSP-1 amino acid sequence are altered such that they are not functional.

77. (canceled)

78. (canceled)

79. (canceled)

80. (canceled)

81. (canceled)

82. (canceled)

83. (canceled)

84. (canceled)